

Amendment to the Specification

1. Please replace the paragraph on page 3, lines 3-7 with the following replacement paragraph with changes shown.

Another embodiment of the invention relates to an SAW device sealed at the wafer level (i.e. prior to separation ~~of the die from the wafer~~). of the die from the wafer). The device includes an active area to be protected, an electrical contact area, and a lithographically-formed structure sealing at least the active area and leaving at least a portion of the electrical contact area exposed.

2. Please replace the paragraph on page 10, lines 17-20 with the following replacement paragraph with changes shown.

FIG. 1H is a cross-sectional diagram depicting the structure after filling the via(s) 16 to seal the target atmosphere 22 in the pocket. The vias (holes) 16 through the coating structure 20 may be filled (see sealed layer 24), for example, by sputtering or evaporation of silicon dioxide or metal.

3. Please replace the two paragraphs on page 11, lines 8-23 with the following two replacement paragraphs with changes shown.

Alternatively, evaporation may be used where the silicon dioxide or metal beam is positioned at an angle to the wafer. Evaporation tends to be highly directional in nature. By positioning the beam at a substantial angle to the wafer, the highly directional beam can fill (see sealed layer 24) the vias 16 without introducing significant evaporated material into the pocket. An additional advantage of evaporation is that a higher vacuum may be achieved in an evaporation chamber in comparison to a sputtering chamber.

As depicted in FIG. 1H, the chosen gas and pressure are then locked into the pocket that is now sealed (see sealed layer 24). This advantageously provides a controlled atmosphere for the acoustically active portion of the device and protects that portion from undesirable contamination. The sealed structure formed as described above should provide a hermetic seal. A hermetic seal is substantially airtight in that it substantially keeps air or gas from getting in or out. However, even for a hermetic seal, small gas molecules will pass through slowly over time through diffusion and permeation. The hermeticity of the seal can be substantially enhanced by coating it with a film of silicon nitride deposited using plasma-enhanced chemical vapor deposition (PECVD).

4. Please replace the paragraph on page 14, line 17 through page 15, line 6 with the following replacement paragraph with changes shown.

Beyond SAW devices, the technique may be applied to protect at the wafer level other devices employing non-silicon-based materials with an active area to protect. Such applications include a high dielectric strength vacuum insulation for domain patterning in ferroelectrics (such as lithium tantalate or lithium niobate), electro-optic modulators (for example, based as lithium tantalate or lithium niobate), and integrated optic structures. In each of these applications, non-silicon-based devices may be lithographically constructed to include a means for receiving a signal in electrical form, a means for applying the signal to an active area of the substrate, and a means for hermetically sealing the active area without impeding receiving of the electrical signal. For ~~an SAW~~ a SAW device, the active area to be protected would, of course, correspond to the wave propagation area. The technique may also be applicable to other near-surface devices. Near-surface devices include, for example, acoustic, optic, non-linear optic, electro-optic, acoustic-optic, and other devices.